INSTALLATION/OPERATION MANUAL
WLV500 SERIES WIRELESS VIDEO TRANSMISSION SYSTEMS

1.0 SCOPE

The information contained within this manual covers the installation and operation of the PELCO WLV500 Series wireless control link system.

Installation should be in accordance with FCC regulations and all applicable local and national electric codes, utilizing approved materials only.

Please thoroughly familiarize yourself with the information in this manual prior to installation and operation.

2.0 DESCRIPTION

PELCO's WLV500 Series wireless control link system is designed to provide wireless remote control of camera positioning and zoom functions. The system is compatible with coaxitron remote control systems such as a PELCO Coaxitron System 2000 and operates **in conjunction with** the WLV1000 wireless video system.

2.1 WLV500 SYSTEM COMPONENTS

1	WLV500TX Transmitter
1	WLV500RX Receiver
2	15 volt AC/DC converters
1	Set mounting hardware kit

2.2 MODELS

WLV500-1	Channel 1
WLV500-2	Channel 2
WLV500-3	Channel 3
WLV500-4	Channel 4

Transmitter (WLV500TX)
Receiver (WLV500RX)
Power Supplies (TRFDP15VDC-500M)
Mounting Hardware (WLVHRDWRKIT)

2.3 ANTENNA OPTIONS

WLVAN-2R	Medium Gain CP Patch (RH), 6 dB
WLVAN-2L	Medium Gain CP Patch (LH), 6 dB
WLVAN-3R	High Gain CP Panel (RH), 13 dB
WLVAN-3L	High Gain CP Panel (LH), 13 dB

3.0 SYSTEM SPECIFICATIONS

Data

Format:	NRZ
Pulse Width:	1V p-p
Duty Cycle:	50%
Levels (Video Compatible):	0.0 to 0.7 V
Impedance	75 ohms
Connectors	BNC

RF

Transmitter Radiated Power:	FCC Part 15 (15.249)
Transmit Antenna:	Attached circular polarized patch
Receive Connector:	TNC
Receive Input Impedance:	50 ohms
Frequency Operating Range:	2400 to 2483 MHz
System Frequency Options:	(Factory Set)
WLV500KT-1	2401 MHz
WLV500KT-2	2428 MHz
WLV500KT-3	2455 MHz
WLV500KT-4	2482 MHz
Frequency Stability:	±0.005%
Modulation:	Wideband FM
Operating Distance:	1,000 feet maximum line-of-sight (Consult factory for extended operating range)

Power (Each Unit)

Input Voltage:	12 to 16 VDC
Input Current:	<350 mA Terminal/Barrier Strip Reverse Polarity Protection

Mechanical

Weight (Each Unit):	<16 oz.
Dimensions:	(D x W x H Inches)
Transmitter	(w/Antenna) 5.00 x 3.50 x 1.80
Receiver	(w/o Antenna) 5.60 x 3.50 x 1.30

Case Finish

Cover:	Black paint
Base:	Alodine aluminum

Environmental

Operating Temperature:	-20° to 65° C
Storage Temperature:	-50° to 85° C
Humidity (Non-condensing):	90%

4.0 INSTALLATION

4.1 VIDEO AND POWER CONNECTIONS

The following instructions are for use with the PELCO Coaxitron System 2000.

1. Refer to Figure 1. The output port labeled "**INPUT FROM RECEIVER**" of the Coaxitron System 2000 transmitter should be connected to the BNC connector indicated on the label as "**DATA IN/VIDEO OUT**" of the WLV500TX control link transmitter. The video signal that originated from the WLV1000RX wireless video receiver (or directly from a camera or other video source) should be connected to the BNC connector labeled "**VIDEO IN**" of the WLV500TX. The port labeled "**OUTPUT TO MONITOR**" of the Coaxitron System 2000 transmitter should be connected to a video monitor.

2. The port labeled "**OUT**" of the Coaxitron System 2000 receiver should be connected to the BNC connector labeled "**DATA OUT**" of the WLV500RX control link receiver.

3. The wall mounted power supplies (15 VDC) included in the system should be connected to the power strips of each unit labeled "**11-16 V**". The striped lead with a red connector should be connected to the positive "+" terminal and the ground lead with the black connector should be connected to the negative "–" terminal. The power supplies should then be plugged into a 120 volt (AC) power outlet.

4. The units should become fully operational within two minutes after DC power is connected, after which adjustments can be made.

4.2 ANTENNA POSITIONING AND MOUNTING

Although the video and data systems operate at different frequencies, out of band emissions exist due to the wideband transmission characteristics of the video signal. At the maximum operating range these out of band video emissions can have a higher signal strength than the received data signal due to the close proximity of the WLV1000TX to the WLV500RX. This will "jam" the WLV500RX receiver preventing reliable operation. To prevent jamming and achieve reliable operation at maximum range the WLV500RX antenna must be located a minimum of 4-5 feet from the WLV1000TX antenna. The distance between the WLV500TX and WLV1000RX antennas is not critical, since the narrow band emissions of the WLV500TX will not noticeably affect the received video signal from the WLV1000RX, but it is recommended to maintain at least 10 inch separation.

The maximum transmission range for both the WLV1000 and WLV500 will be achieved when there is a clear line of sight between the transmitter and receiver antennas. The best reception will occur if all antennas are elevated a minimum of 8 to 10 feet above level ground. If there are moving objects between the antennas, such as traffic on the road, the antennas should be elevated a minimum of 8 to 10 feet above such objects to obtain the best reception .

For units that have a detachable antenna on the receiver, only a high quality, low loss 50 ohm cable (RG-8 or similar) should be used for situations requiring a longer interconnection between the receiver and antenna. It is also best to position the antenna such that the front of the antenna is directly facing the transmitter, and is not obstructed by any metallic objects.

For large separations, it is recommended that a two-way voice communication device be used to best position the transmitter and receiver. When a suitable location is found, the mounting brackets should be used to secure the units in place.

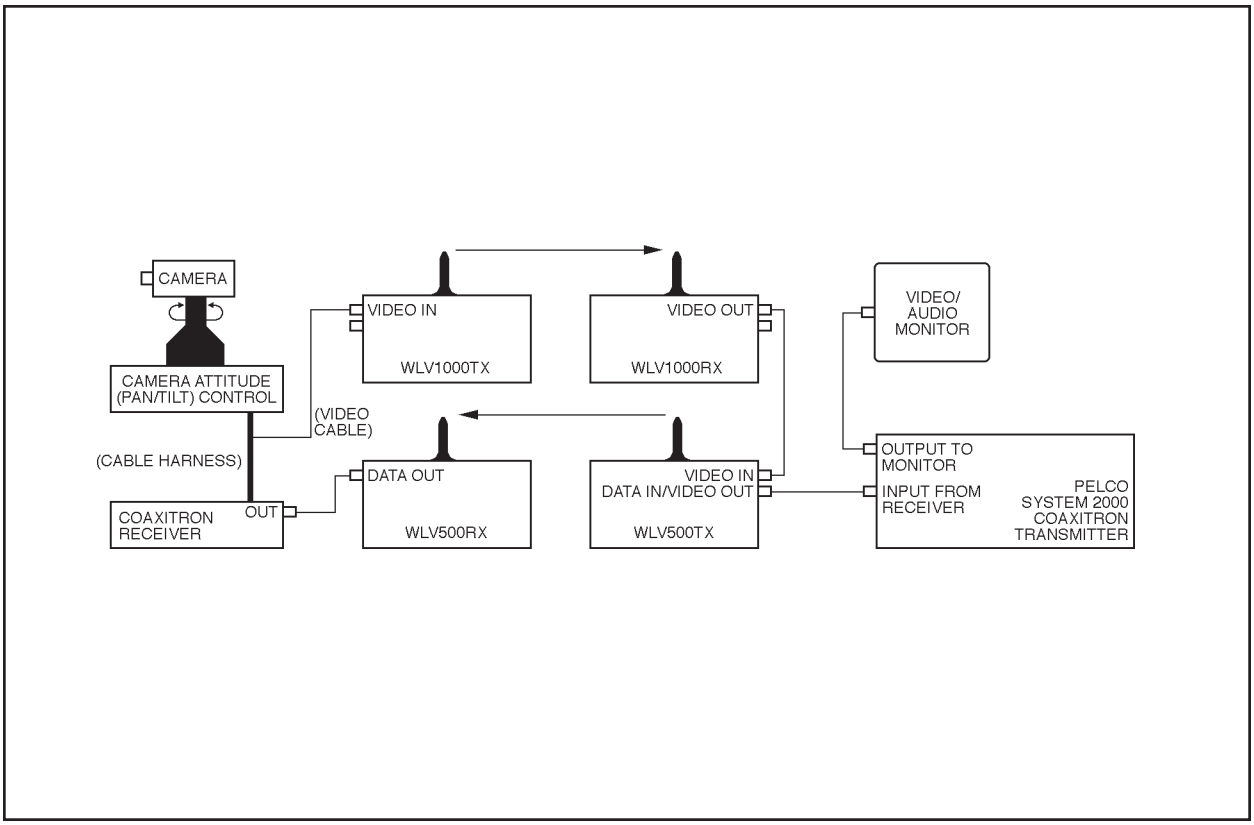

Figure 1. Typical WLV1000 Video/WLV500 Control Link System Configuration

4.3 TROUBLESHOOTING

It is recommended that the wireless transmission control link system be first tested with both the WLV500 and WLV1000 transmitters and receivers in close proximity (3 to 6 feet), to ensure proper interconnection of the coaxitron receiver and transmitter with the wireless transmitters and receivers. If all interconnections are made appropriately as described, there should be uninterrupted remote control of the pan and tilt device. If there should be difficulties at this point then:

1. Check the performance of the system minus the wireless control link transmitter and receiver by directly connecting the coaxitron transmitter to the coaxitron receiver. This will verify the performance of the coaxitron system, as well as verify that the interconnecting cables are good.

2. If the verification detailed in (1) above is performed and the system is fully reconnected and there is still not full control, check the power supply voltage. If the voltage out of the supply is less than 12.0 volts, the power supply needs to be replaced. Please contact PELCO for a replacement.

3. If the system is still not operating after successfully verifying the steps above, the fault must lie within the wireless control link system. Please contact PELCO immediately for a replacement. It is our policy to provide quality products to our customers.

If the transmitter and receiver are now placed in their required locations and there is intermittent control failures on the pan and tilt, there are several possible reasons that need to be addressed individually.

1. **Exceeding Maximum Range**

   The base models of these units are specified to operate at 1,000 feet maximum line-of-sight distance. Obstructions between the transmitter and receiver antennas will reduce maximum range. The maximum distance will vary depending on the type and number of obstructions encountered. If the operating distance is nearing 1,000 feet, then we recommend an upgrade to the receiver antenna.

2. **Interference**

   The WLV500 Series transmit in the 2.4 GHz band. Although this band is less crowded than the 900 MHz band, it is still susceptible to some outside interference, including mobile video transmission. Most interference should be very temporary, but if consistent interference occurs there are 3 channels that are available. At no cost to the user, the unit can be replaced by a system that operates in another channel.

3. **Multipath Reception (Ghosting)**

   Since the WLV500 Series employs FM modulation of the data onto the carrier it is less susceptible to multipath interference than commercial broadcast systems that employ amplitude modulation. The WLV500 system also employs circularly polarized antennas that provide some immunity to multipath reflections. However, multipath interference can occur and depends on antenna location relative to nearby metallic objects, and on the direction the antenna is facing. The receiver antenna provides the most gain and highest multipath immunity when it is directly facing the transmitter. If multipath interference occurs, it can usually be eliminated by relocating or reorienting the receive antenna a small distance (less than 1-2 feet).

Note: Due to the difficulty of predicting the susceptibility of any one application to the transmission limitations described above, it is generally recommended that site testing occur prior to installation. Consult your customer service representative to obtain further information.

5.0 WARRANTY AND RETURN INFORMATION

WARRANTY

Pelco will repair or replace, without charge, any merchandise proved defective in material or workmanship for a period of one year after the date of shipment.

Exceptions to this warranty are as noted below:

- Five years on FT/FR8000 Series fiber optic products.
- Three years on Genex® Series products (multiplexers, server, and keyboard).
- Three years on Camclosure® and fixed camera models, except the CC3701H-2, CC3701H-2X, CC3751H-2, CC3651H-2X, MC3651H-2, and MC3651H-2X camera models, which have a five-year warranty.
- Two years on standard motorized or fixed focal length lenses.
- Two years on Legacy®, CM6700/CM6800/CM9700 Series matrix, and DF5/DF8 Series fixed dome products.
- Two years on Spectra®, Esprit®, ExSite™, and PS20 scanners, including when used in continuous motion applications.
- Two years on Esprit® and WW5700 Series window wiper (excluding wiper blades).
- Eighteen months on DX Series digital video recorders, NVR300 Series network video recorders, and Endura™ Series distributed network-based video products.
- One year (except video heads) on video cassette recorders (VCRs). Video heads will be covered for a period of six months.
- Six months on all pan and tilts, scanners or preset lenses used in continuous motion applications (that is, preset scan, tour and auto scan modes).

Pelco will warrant all replacement parts and repairs for 90 days from the date of Pelco shipment. All goods requiring warranty repair shall be sent freight prepaid to Pelco, Clovis, California. Repairs made necessary by reason of misuse, alteration, normal wear, or accident are not covered under this warranty.

Pelco assumes no risk and shall be subject to no liability for damages or loss resulting from the specific use or application made of the Products. Pelco's liability for any claim, whether based on breach of contract, negligence, infringement of any rights of any party or product liability, relating to the Products shall not exceed the price paid by the Dealer to Pelco for such Products. In no event will Pelco be liable for any special, incidental or consequential damages (including loss of use, loss of profit and claims of third parties) however caused, whether by the negligence of Pelco or otherwise.

The above warranty provides the Dealer with specific legal rights. The Dealer may also have additional rights, which are subject to variation from state to state.

If a warranty repair is required, the Dealer must contact Pelco at (800) 289-9100 or (559) 292-1981 to obtain a Repair Authorization number (RA), and provide the following information:
1. Model and serial number
2. Date of shipment, P.O. number, Sales Order number, or Pelco invoice number
3. Details of the defect or problem

If there is a dispute regarding the warranty of a product which does not fall under the warranty conditions stated above, please include a written explanation with the product when returned.
Method of return shipment shall be the same or equal to the method by which the item was received by Pelco.

RETURNS

In order to expedite parts returned to the factory for repair or credit, please call the factory at (800) 289-9100 or (559) 292-1981 to obtain an authorization number (CA number if returned for credit, and RA number if returned for repair).

All merchandise returned for credit may be subject to a 20% restocking and refurbishing charge.

Goods returned for repair or credit should be clearly identified with the assigned CA or RA number and freight should be prepaid. Ship to the appropriate address below.

If you are located within the continental U.S., Alaska, Hawaii or Puerto Rico, send goods to:

Service Department
Pelco
3500 Pelco Way
Clovis, CA 93612-5699

If you are located outside the continental U.S., Alaska, Hawaii or Puerto Rico and are instructed to return goods to the USA, you may do one of the following:

If the goods are to be sent by a COURIER SERVICE, send the goods to:

Pelco
3500 Pelco Way
Clovis, CA 93612-5699 USA

If the goods are to be sent by a FREIGHT FORWARDER, send the goods to:

Pelco c/o Expeditors
473 Eccles Avenue
South San Francisco, CA 94080 USA
Phone: 650-737-1700
Fax: 650-737-0933

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(Product specifications subject to change without notice.)

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